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ABSTRACT

American students are exposed to many different romanization systems when learning Chinese. The most important systems include Pinyin, Zhuyin fuhao, Wade-Giles, Gwoyeu Romatzhy, and the Yale system, to name just a few. The Pinyin system, which is built on the English alphabet, is the official transliteration system of mainland China. The Zhuyin fuhao, which employs symbols closer to Chinese characters, is the official system in Taiwan. These two systems are by far the best available to Chinese teachers. However, despite their strengths, both of them have some weaknesses. The Pinyin is easy to learn but too concise; the Zhuyin fuhao is accurate but operates in a non-alphabetical framework. In this paper, a new system called the "Chow and Lam Method" is proposed--a system that attempts to combine the strengths of the two most frequently used methods so that they can complement one another and help to formulate a more effective approach to teaching Chinese pronunciation. (Contains 10 references.) (Author/LR)

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Pinyin + Zhuyin: Introducing a More Effective Way of Teaching the Sound System of Chinese*

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Abstract

American students are exposed to many different romanization systems when learning Chinese. The most important systems include Pinyin, Zhuyin fuhao, Wade-Giles, Gwoyeu Romatzhy, and the Yale system, to name but just a few. The Pinyin system, which is built on the English alphabet, is the official transliteration system in Mainland China. The Zhuyin fuhao, which employs symbols closer to Chinese characters, is the official system in Taiwan. These two systems are by far the best available to Chinese teachers. However, despite their strengths, both of them have some weaknesses. The Pinyin is easy to learn but too concise; the Zhuyin fuhao is accurate but operates in a non-alphabetical framework. Proposing the Chow and Lam Method, we attempt to combine the strengths of the two approaches so that they could complement one another and help to formulate a more effective approach to teaching Chinese pronunciation.

*This paper was written by the first author; the idea of the paper originated from a discussion with the second author.

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Introduction

Pronunciation is an important yardstick in measuring the success of learning Chinese. However, it is also one of the most difficult steps in learning the language. Suppose, for instance, you are a beginner in Chinese, and you hear the following terms: jīběn 基本 (basic), zhīshi 知識 (knowledge), and zījīn 資金 (money for investment). You may find the consonants j, zh and z confusing, since they sound very similar though distinctly different. Consonants such as these (there are several groups) are notoriously hard to distinguish even if they are transcribed into alphabets familiar to a western learner, because different systems of transcription may further complicate the matter. In view of this, we would like to introduce a new method of teaching Chinese pronunciation. By combining the two official transliteration systems used in Mainland China and Taiwan, teachers of elementary Chinese can help students overcome difficulties of pronunciation effectively.

Chinese is a non-alphabetical language. Chinese characters are constructed according to six principles of formation (liù shū 六書):

1. xiàngxíng 象形, or 'pictographs' (e.g., rì 日 'sun,' yuè 月 'moon');

2. zhǐshì 指事 , or 'indicative signs' (e.g., shàng 上 'up,' xià 下 'down');
3. xíngshēng 形聲 , or 'shape and sound in combination' (e.g., jiāng 江 'stream,' and hé 河 , 'river');
4. huìyì 會意 , which combines characters of different meanings to suggest a new meaning (e.g., rén 人 'people' and yán 言 'speech' together suggest xìn 信 'trust');
5. zhuǎnzhù 轉注 , which adopts a homonymic character for a spoken word not yet represented in writing (e.g., shè 舍 'house' becomes shě 捨 'to abandon');
6. jiǎjiè 假借 , which can be regarded as the principle of extending the basic meaning of an existent character or appropriating an existing character to refer to new concepts (e.g., lìng 令 etymologically meant 'command / to give commands,' but the character was later adopted in new phrases to mean 'commander' as in xiànlìng 縣令 'commander of a county.'

The six principles can be divided into three groups: (1) and (2) are fundamental principles in that all Chinese characters began as xiàngxíng or zhǐzhì characters and that all of the basic radicles also fall under this category; (3) and (4) are secondary principles in that they are derived from (1) or (2) in combined forms; (5) and (6), which have been interpreted in a large number of controversial and confusing ways, are (in our opinion) redundant or economic principles in that rather than creating new characters, existent characters are adopted to represent existent sounds or indicate new concepts. Although some scholars (DeFrancis, 1984a, Zhou, 1978) believe that the majority of

commonly used Chinese characters belong to the "xíngshēng" category, it should be pointed out that learners can only guess the pronunciation of the characters *after* they have become familiar with the basic radicles (morphemes) of the language, i.e., characters created according to the two fundamental principles. To beginning learners, especially those from western cultures, all the characters look "alien," and have no apparent phonetic indications.

To teach Chinese to beginners as a foreign language, a Chinese teacher has to choose a system of romanization. The choice will have an important impact on the learning process of the students. If the system chosen is difficult or confusing, students may lose interest and drop out. In teaching Chinese to American students, it is important to ensure that the romanization system adopted can be readily assimilated by the student; to this end, the system should be geared to the student's habit of pronunciation.

However, the choice is not easy to make. Different systems have been devised to romanize Chinese. Important ones include the Wade-Giles, the Gwoyeu Romatzhy (GR), and the Yale system; the most important systems, of course, are the official Pinyin and Zhuyin fuhao used in Mainland China and Taiwan respectively. At present, there is no consensus as to which system is the best aid for teaching and learning the language. In fact, different teachers use different systems, depending on their previous training and familiarity with a particular system. However, from a pedagogical point of view, it is more effective to adopt a

romanization system which is standardized, accurate, practical, and simple to learn.

The Pinyin and Zhuyin fuhao are by far the best systems available to the teacher in terms of meeting these four criteria. They are not only standardized systems, but in fact also outperform the others by being more simple, accurate, and practical. (A brief review of the major pedagogical limitations of the Wade-Giles method, the Yale system, and the Gwoyue Romatzhy (GR), is included in Appendix I.) Their effectiveness has been proven by the millions of preschool children learning them in Mainland China and Taiwan. Linguistic reasons apart, our consideration in endorsing the two systems and proposing a combination of the two is actually also a practical one. It is often the case that American students learning Chinese will go to work or study in China or Taiwan. Therefore, they need to be familiar with the dominant pronunciation systems in the two areas. Even if these students have to learn other systems like the Wade-Giles eventually in order to work on library materials, it would be easy to build on the basis of Zhuyin fuhao and Pinyin. However, because there are some minor weaknesses in both of these two systems, we also find it desirable to have them combined. The combination is not a new system in itself and will not add complications to the existing systems. As we will explain below, it is a new method that is more suitable for the teaching of pronunciation.

Zhuyin fuhao and Pinyin

The Zhuyin fuhao was promulgated in 1918 as Guoyin zimu (National Phonetic Alphabet). In 1930, it was renamed as Zhuyin

fuhao. The name itself already implies that it is not a replacement but a pronunciation aid to the written character. With the sentiment of "culture preservation," people were in opposition to any latinized system when Zhuyin fuhao was first proposed (DeFranics, 1950, p. 56). Similar to the Japanese hiragana and katakana, the system employs a set of symbols closer to the Chinese characters than the alphabets (Appendix II). Though it was only used sporadically in Mainland China in the 50's, it is extensively used in Taiwan, and in fact forms the basic element for first grade instruction (DeFrancis, 1984b, p. 243). The system is also widely used by Chinese schools in America run by students and scholars from Taiwan.[1]

The system as it now stands has 21 initials, 13 finals and 3 medials. Sharing the same characteristic of the Pinyin system, the four common diacritics (-, /, v, \) are used as tone marks (but the first tone mark, represented by a -, is omitted). Working outside the realm of the alphabet, this system enjoys the privilege of being able to represent sounds on a one-to-one basis, i.e., one notation is assigned to one sound/phoneme. The medials /u/, and /ü/ are represented by entirely different notations (/x/ and /ㄩ/ respectively), so that the kind of confusion that would happen in an alphabetical system of notation will not arise at all. Another strength of the Zhuyin fuhao system is that it presents all the sound elements of a character, thus enabling the students to pronounce it more accurately. For example, in duei 對 'right,' all the three elements, initial (/d/), medial (/u/) and final (/ei/), are given. Deeney (1973) comments that "The CT [Zhuyin fuhao] is well worth mastering, for, when learned

properly, it can help one attain a most accurate reproduction of the original Chinese sound system" (p. 25).

For all its merits, it should be pointed out that the major drawback of the Zhuyin fuhao lies in the fact that American students will have to learn a foreign set of symbols anew. This is an additional chore on top of learning the language. Therefore, our approach is to incorporate the strengths of this non-alphabetical system into an alphabetical system by combining it with the Pinyin.

The Pinyin system was promulgated in 1958. It is an alphabetical system using the four diacritics to indicate the tones. Apart from being the standardized system in China, the Pinyin system has also been gaining international recognition, and is gradually replacing the Wade-Giles in newspaper and scholarly publications in the West. It is endorsed by the United Nations, and is used in Hong Kong and Singapore. Here in America, although the Library of Congress is still hesitant to convert from Wade-Giles to Pinyin for its Chinese materials, other libraries are looking into such a possibility.[2] There should be little doubt that the system will eventually become the standard way of transliterating Chinese in the next two decades.

In the Pinyin system, there are 21 initials, 14 finals, and 3 medials. Instead of using the "apostrophe" as in the Wade-Giles, the Pinyin makes full use of the English alphabet, assigning different letters to represent the initials, which are grouped as follows (Liu et al., 1988, p. 122):

1. Labial sounds are represented by "b," "p," "m," "f";
2. Alveolars by "d," "t," "n," "l";

3. Gutturals by "g," "k," "h";

4. Palatals by "j," "q," "x";

5. Sibilants by "z," "c," "s";

6. Retroflexes by "zh," "ch," "sh," and "r."

One major advantage of this system is that the symbols are familiar to the American students. They do not have to memorize a new set of symbols to learn the language. The sounds of the labials, alveolars and gutturals are basically comparable to their English counterparts. Of course, on the other hand, the students can also get confused in the beginning about the sound values of some notations--which in fact have entirely different manners of articulation as compared to their usual indication in English. The symbols of the palatal group "j, q, x" stand for sound values which are quite different from their usual representation for western languages. Unless assisted by the teacher, the students will not be able to produce the sounds correctly based on the symbols alone.

Another advantage of the system is the introduction of the diphthong "/ong/," which is absent in Zhuyin fuhao. The sound in such words as dōng 冬 'winter,' tōng 通 'through,' xióng 熊 'bear' can be produced easily, whereas in Zhuyin fuhao, the diphthong is represented by the medials "/x/" ("/u/") or "/ㄩ/" ("/ü/) and the diphthong "/ㄥ/ " ("/eng/"). A linguistic rule has to be observed to transform the combinations ("/x/ + /ㄥ/" or "/ㄩ/+ /ㄥ/") into "/ong/" before the desired sound is produced. For beginning learners (especially children) using the Zhuyin fuhao, this additional transformation may entail extra difficulties.

The following simplifications in notation in the Pinyin System are also very helpful:

1. Finals: /i/ + /en/→/in/, e.g., jīn 金 'gold,' xīn 新 new.' Based on the notations alone, the Pinyin system can help the students to produce the correct sounds positively. In Zhuyin fuhao, however, a linguistic transformation (/i/ + /en/→ /in/) has to be performed before one can say the word correctly.
2. Finals: /i/ + /eng/→/ing/, e.g., míng 明 'bright,' píng 平 'flat.' Again, this is a better notation that has already assimilated the linguistic transformation. On the other hand, the notation in Zhuyin fuhao requires the learner to perform a mental transformation of the finals before sounding out the words.

However, the Pinyin system also has its weaknesses. As illustrated in the examples of simplification, one of the main goals of the system is "conciseness." However, sometimes, it has simplified to the extent of causing confusion for beginning learners. Some of the trouble spots are listed below.

No distinction in notation between /e/ and /ê/

Although the two finals /e/ and /ê/ are distinguished by the diacritic "ˆ" in a pronunciation chart of the Practical Chinese Reader, no distinction was made in the text of the same book. For example, the two different vowels in gēge 哥哥 'elder brother' and xièxiê 'thank you' (Liu et al.,pp. 21 & 70) are written in the same way as /e/. Although a careful linguistic analysis shows that the two vowels do not occur in the same environment, it causes confusion for beginning learners.[3]

No distinction in notation between /u/ and /ü/

The system does not make a distinction in notations between the medials /u/ and /ü/, unless /ü/ occurs after the initials /l/ and /n/. This is based on the analysis that either /u/ or /ü/ may occur after /l/ and /n/; however, they are in complementary distribution for the other initials. That is, if one occurs in one context, the other will not occur in the same context. The medial /ü/ only occurs with palatals (j, q, x), while /u/ occurs with nonpalatals (Norman, p. 142). Although the decision in simplifying the notations makes the system more concise, inevitably it also causes confusion for beginners, who are mostly unfamiliar with linguistic rules.

The over-simplification of some notations

While some simplifications are helpful, the following are confusing:

1. /u/ + /ei/ → /ui/, e.g., duèi 對 'correct' becomes dùi; tuēi 推 'push' becomes tuī. The reduction causes confusion for the beginners because it is difficult to arrive at an accurate pronunciation based on the notation.[4]
2. /u/ + /en/ → /un/, e.g., duèn 頓 'stop' becomes dùn, chuen 春 'spring' becomes chun. Students have to be aware that the /n/ does carry the full vowel /en/ when trying to pronounce the words. Thus, the notation is not as clear and accurate as that of Zhuyin fuhao, which spells out all of the three elements in the word.[5]

From our discussion above, it seems quite clear that the Pinyin system and Zhuyin fuhao can complement each other in

certain aspects so that a more suitable approach may be developed to facilitate the teaching of the sound system of Chinese.

The Chow and Lam Method

The "Chow and Lam Method" is an attempt to combine the two systems (Appendix III). According to this method, all the notations of the Zhuyin fuhao are converted to the Latin alphabets of the Pinyin system. However, the order of the initials and finals of the Zhuyin fuhao as introduced in Taiwan are maintained.[6] The order of this arrangement places the initials and finals in groups so as to facilitate sound production. For instance, the labial sounds are followed by the alveolar and guttural; the two groups of sounds which cause most confusion for American students, namely the palatals and dental sibilants, are separated by the retroflexes. The finals are categorized in groups of simple, compound, nasal, tongue-roll and semi-vowels. This arrangement enables the students to remember the sounds in the form of a song, which is analogous to the English alphabet-song taught in preschool: a b c d e f g--bo po mo fo de te ne le; ge ke he.... In fact, a song was actually composed on this order for overseas Chinese to learn Zhuyin fuhao.[7] The "song" strategy is proven to be effective, and is similar to the hiragana and katagana in Japanese, in which the sound chart can be sung out as "a, ei, u, e, o; ka, ki, ku, ke, ko; sa, si, su, se, so...." At present, there has been no attempt of teaching the Pinyin system in the form of a song, but there is no reason why it should not. The song approach is actually highly desirable because it also has the added advantage of

showing the student the relationships (similarities and differences) among the six initial sound groups listed above.

The second strength of this combined method is accuracy. As noted by Deeney, Zhuyin fuhao helps students to arrive at the most accurate production of the Chinese sounds. With the help of a chart (Appendix III), the teacher, at the beginning stage of introducing the sound system of Chinese, can sound out every single element of a word-character in Zhuyin fuhao by means of pointing at the elements themselves. For example: in the case of duèn 頓 'stop,' the three elements of /d/, /u/, /en/ of the word can be shown to the students visually, in a left to right order, by pointing to the chart. This approach complements the conciseness of the Pinyin system which reduces the notation of the word to dun.

The third strength of this method is standardized transcription. It is important that right from the beginning, the students should learn the standardized way of transliterating Chinese. This chart (Appendix III) will enable them to achieve this goal because it works within the framework of the Pinyin system. It has to be noted though, that because of the tendency to simplify in the Pinyin system, duen is written as dun in standardized dictionaries, therefore, the students trained in this method are actually learning the long form in the beginning, and finally will have to get used to the standardized (short) form when they have progressed to a more advanced stage.

Concluding Remarks

In conclusion, the Chow and Lam approach enables the students to learn one system, yet function in two, and work better. This

is because the structures of both the Pinyin and Zhuyin fuhao are introduced in the combined chart at the same time. Students who go to work or study in Mainland China should have no problem in following the official way of transliteration. Although students going to Taiwan would still have to acquaint themselves with the notations of Zhuyin fuhao by a conversion table, psychologically, they should feel much more prepared because they have virtually been learning the Zhuyin fuhao though in the form of alphabets. Most important of all, by complying with the principles of simplicity, accuracy and practicality, the method will ensure a more enjoyable experience of learning Chinese pronunciation, which gives the basis and incentive for further learning.

Notes

* This paper was written by the first author; the idea of the paper originated from a discussion with the second author.

[1] One example is the Chinese School in Athens, Georgia, which offers classes from beginning to advanced levels on Sunday afternoons.

[2] This was based on a conversation with the personnel of the Acquisition Department of the University of Georgia library.

[3] The two vowels are mostly in complementary distribution, i.e., if one vowel such as /e/ occurs after /s/, the other vowel /ê/, does not occur after the same initial. Further analysis also shows that if the two vowels do occur after the same initial, the vowel /ê/ is often preceded by a medial /i/, e.g. dé 德 'virtue,' diē 爹 'dad'; lè 樂 'happy,' liè 裂 'crack'; tè 特 'special,' tiě 鐵 'iron.'

[4] The regular reduction in all its possible occurrences such as in the following additional examples of zuì 醉 'drunk,' cuì 脆 'crispy,' suì 歲 'age,' however, does help to make the reduced forms easier to learn.

[5] The examples of the reduced forms were taken from *The pinyin Chinese-English dictionary* edited by Wu Jingrong et al. Hong Kong: Commercial Press, Hong Kong Branch, 1979.

[6] The final /ong/ as introduced in the Pinyin system is included as an optional diphthong for the user. In addition, the two finals /e/ and /ê/; the two medials /u/ and /ü/ are distinguished from each other by means of diacritics.

[7] The song strategy was employed in the video tape, *Learning the Chinese Language Together*, produced by the Overseas Chinese Affair Commissions, Taiwan. The tape is used in the Chinese School in Athens, Georgia, for beginning students.

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Appendix I

A Brief Review of Three Transliteration Systems

The Wade-Giles method was developed by Sir Thomas Francis Wade, and modified by Herbert Allen Giles in his A Chinese-English Dictionary (London, 1892.) It enjoyed tremendous popularity in and out of China for the purpose of transliteration before the 50's, and is still the preferred method in romanizing Chinese bibliographical information in American libraries and academic circles. However, as DeFrancis (1984b) pointed out, it is being gradually superseded by the Pinyin system in both western newspapers and scholarly publications.

The Wade-Giles system uses the "aspiration" feature to distinguish Chinese initials, i.e., the same alphabet is assigned to the pair of initials which are produced in the same place of articulation but in a different manner. An apostrophe is then used to distinguish the two initials, e.g. /p/, /p'/; /t/, /t'/; and /k/,/k'/ (Appendix IV). One major weakness of the Wade-Giles system is the repetition of representation in two of its notations. The notations /ch/ and /ch'/ are used to represent both the palatals and the retroflexes (ibid). This would certainly lead to a long period of confusion for beginning students. The use of /j/ to represent the retroflex /r/ is also far from the psychological reality of the American students.

The Yale system was created through the efforts of George A. Kennedy in 1943. According to Deeney (p. 24), this system is mainly restricted to works published by Yale University. Although it is quite similar to the Pinyin system in notation, like the Wade-Giles system, it also has the problem of using the same notations for different sounds. The notation /s/ is used for both a palatal and a dental sibilant sound; /ch/ is used for both the palatal and the retroflex (see Appendix IV). The additional work that a notation carries is likely to lead to confusion in learning.

The Gwoyue Romatzhy (GR) system, developed by the Chinese linguist Y. R. Chao, was adopted by the Chinese government in 1928. Although it is the first romanization system developed by a Chinese, it has never supplanted Wade-Giles (Deeney, p. 26). The GR system uses orthographic indicators, i.e., varied spellings, to represent the different tones of different characters with the same pronunciation. The price to pay for the alleged increased accuracy of representation, however, is that various rules have to be followed. In fact, more than ten linguistic rules were devised to change the spellings of different groups of words in order to indicate the four tones (Mandarin Primer, pp. 24-34). To give a few examples: mai (second tone) 埋 'to bury,' mae (third tone) 買 'to buy,' may (fourth tone) 賣 'to sell'; shau (first tone) 燒 'to burn,' shao 少 (third tone) 'very few,' shaw (fourth tone) 少 'youthful' (Mandarin

Primer, p. 11).

The system was simplified by Lin Yu-tang in 1972 in his A Chinese-English Dictionary of Modern Usage (Deeney, p. 28). However, it is still a complicated system. The effort spent on knowing and getting familiar with the rules adds extra strain to the learning process. A more serious problem is that even if the students do succeed in accepting the rules, they tend to learn the language visually rather than aurally, in the sense that they rely less on their ears to distinguish tones because of the built-in dependency on orthography for tones. Consequently, it is often that they are weak in speaking the words with the correct tones.

Although these systems have been or are still popular in some circles, from a pedagogical point of view, they have serious drawbacks of one kind or another, giving rise to unnecessary confusion and difficulty to the student learning the language.

APPNEDIX II

ZHUYIN FUHAO

* This chart was prepared by Ms Lu Weiming for a beginning Chinese class in Athens, Georgia. Non-existing sounds are indicated by slashes.

APPENDIX III

The Chow and Lam Method: Integrating the Pinyin System and Zhuyin fuhao in the teaching of Chinese Pronunciation

CONSONANTS AND VOWELS OF CHINESE

		VOWELS (simple finals)				DIPHTHONGS (compound finals)				NASAL VOWELS (nasal finals)				Tongue -roll vowel	SEMI-VOWELS (medials)		
															i	u	ü
		a	o	e	ê	ai	ei	ao	ou	an	[e]n	ang	[e]ng *ong	er			
LABIAL	b			x	x				x				x	x			x
	p			x	x								x	x			x
	m			x	x								x	x			x
	f			x	x	x		x					x	x	x		x
ALVEOLAR	d		x		x						x			x			x
	t		x		x		x				x			x			x
	n		x		x		x							x			
	l		x		x						x			x			
GUTTURAL	g		x		x									x	x		x
	k		x		x		x							x	x		x
	h		x		x									x	x		x
PALATAL	j+i		x	x		x	x							x	x	x	x
	+u	x	x	x		x	x	x	x			x	x	x	x	x	x
	q+i		x	x		x	x							x	x	x	x
	+u	x	x	x		x	x	x	x			x	x	x	x	x	x
	x+i		x	x		x	x						x	x	x	x	x
	+u	x	x	x		x	x	x	x			x	x	x	x	x	x

		VOWELS (simple finals)				DIPHTHONGS (compound finals)				NASAL VOWELS (nasal finals)				Tongue-roll vowel	SEMI-VOWELS (medials)
															i u ü
		a	o	e	ê	ai	ei	ao	ou	an [e]n	ang [e]ng	*ong		er	
RETROFLEX	zh		x		x		x							x	x
	ch		x		x		x							x	x
	sh		x		x							x		x	x
	r		x		x	x	x							x	x
SIBILANT	z		x		x									x	x
	c		x		x									x	x
	s				x		x							x	x
MEDIAL	yi			x										x	x x x
	wu			x	x							x		x	x x x
	yu	x	x	x							x	x		x	x x x

Notes:

1. Non-existing sounds in Chinese are indicated by "x"s in the chart.
2. All the Combined Vowels (medials + finals) are not treated separately for the purpose of keeping this chart simple and attractive to learning. However, the same purpose can be achieved if the teacher combines the medials on the top right- hand corner with the finals.
3. The [e] in /en/ and /eng/ is a pronunication aid. When /en/ and /eng/ occur after a consonant, the [e] is pronunced (e.g., bèn 笨 'foolish,' bēng 崩 'crack'). However, when /en/ and /eng/ occur

after a combination of consonant and the medial /i/, the [e] is silent (e.g., mín 民 'people.' and míng 明 'bright').

* The inclusion of the nasal final /ong/ in this chart is optional. This particular final is included in the Pinyin system, but not in Zhuyin fuhao, which represents the same sound by the combinations of /ㄒㄥ/ or /ㄩㄥ/. Students will be able to produce this sound more accurately if this notation is included. On the other hand, the chart will remain less complicated, and conform with the Zhuyin fuhao system if it is taken out.

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APPENDIX IV

COMPARATIVE TABLES OF INITIALS

	NO.	PINYIN	WADE-GILES	YALE	CHU-YIN TZU-MU	GWOYEU ROMATZYH	IPA	ILLUSTRATIVE CHARACTERS	APPROXIMATE ENGLISH SOUNDS
Labials	1	b	p	b	ㄅ	b	p	玻	p as in spy, but not b as in be
	2	p	p'	p	ㄆ	p	p'	坡	p as in pip, strongly aspirated
	3	m	m	m	ㄇ	m/mh	m	摸	m as in man
	4	f	f	f	ㄈ	f	f	佛	f as in food
Dentals	5	d	t	d	ㄉ	d	t	德	t in still, but not d as in do
	6	t	t'	t	ㄊ	t	t'	特	t as in tea, strongly aspirated
	7	n	n	n	ㄋ	n/nh	n	訥	n as in nine
	8	l	l	l	ㄌ	l/lh	l	肋	l as in lily
Velars	9	g	k	g	ㄍ	g	k	哥	k in skull, but not g as in go
	10	k	k'	k	ㄎ	k	k'	科	c and k as in kick, strongly aspirated
	11	h	h	h	ㄏ	h	x	喝	ch in Scots loch
Palatals	12	j	ch	j	ㄐ	j	tɕ	基	as in jeer, but not voiced
	13	q	ch'	ch	ㄑ	ch	tɕ'	欺	ch as in cheek
	14	x	hs	s	ㄒ	sh	ɕ	希	sh as in she, but close to s as in see

	NO.	PINYIN	WADE-GILES	YALE	CHU-YIN TZU-MU	GWOYEU ROMATZYH	IPA	ILLUSTRATIVE CHARACTERS	APPROXIMATE ENGLISH SOUNDS
Retroflex	15	zh	ch	j	ㄓ	j	tʂ	知	j as in judge, but not voiced, with retroflexion
	16	ch	ch'	ch	ㄔ	ch	tʂ'	吃	ch as in church, with retroflexion
	17	sh	sh	sh	ㄕ	sh	ʂ	詩	sh as in shore, with retroflexion
	18	r	j	r	ㄖ	r/rh	ɻ	日	r as in run, with retroflexion
Sibilants	19	z	ts/tz	dz	ㄗ	tz	ʦ	咨	ds as in seeds, but not voiced
	20	c	ts'/tz'	ts	ㄘ	ts	ʦ'	疵	ts as in hearts
	21	s	s/ss/sz	s	ㄙ	s	s	私	s as in sister
Semivowels	22	y	y	(y)	ㄧ		j		y as in yes; see Appendix FF, 11(b
	23	w	w	(w)	ㄨ		w		w as in we; see Appendix FF, 24

Source: Deeney, John J. (1973). Style Manual and Transliteration Tables for Mandarin. Tamking Review, Monograph Series Number One. Taipei, Taiwan: Western Literature Research Institute. 171-72.

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